

connection pads at said top surface with each connection pad capturing at least one of said vias;

connection pads at said bottom surface connected by said conductive vias with said connection pads at said top surface;

an electronic component having a first thermal coefficient of expansion (TCE) and having connection pads spaced to align with said connection pads at said top surface;

first solder connections formed from solder balls between said connection pads at said top surface and said component connection pads;

a printed circuit board (PCB) having a second TCE and having connection pads aligned with said connection pads at said bottom surface;

second solder connections formed from solder balls between said connection pads at said bottom surface and said PCB connection pads, wherein at least said first solder connections or and said second solder connections have a reduced cross section at said substrate are shaped to better absorb at least a portion of the stress due to differences between said first TCE and said second TCE with said second solder connections free of underfill.

Claim 3 (currently amended). Ball grid array mounted circuit of claim 1 wherein said electronic component connection pads have a size substantially larger than a size of said connection pads at said top surface and said first solder connections have a substantially smaller cross section at said pads at said top surface than at said component connection pads which acts to absorb at least a portion of the stress due to differences between said first TCE and said second TCE.

Claim 4 (currently amended). Ball grid array mounted circuit of claim 1 wherein said PCB connection pads have a size substantially larger than a size of said connection pads at said bottom surface and said second solder connections have a substantially smaller cross section at said pads at

said bottom surface than at said PCB connection pads which acts to absorb at least a portion of the stress due to differences between said first TCE and said second TCE.

Claim 12 (currently amended). A ball grid array mounted circuit comprising;

a flexible stress relief substrate having a top surface and a bottom surface;

spaced conductive vias extending between the top surface and said bottom surface;

connection pads at said top surface with each connection pad capturing at least one of said vias;

connection pads at said bottom surface connected by said conductive vias with said connection pads at said top surface;

an electronic component having a first thermal coefficient of expansion (TCE) and having connection pads spaced to align with said connection pads at said top surface, said electronic component connection pads being of a larger size than said connection pads at said top surface;

solder connections formed from solder balls between said connection pads at said top surface and said component connection pads, with said larger size pads causing said solder connections to have a substantially greater larger cross section at said component connection pads than at said connection pads at said top surface;

a PCB having a second TCE and having connection pads aligned with said connection pads at said bottom surface, said PCB connection pads being of a larger size than said connection pads at said bottom surface; and

solder connections formed from solder balls between said connection pads at said bottom surface and said PCB connection pads with said larger size pads causing said solder

connections to have a substantially greater larger cross section at said PCB connection pads than at said connection pads at said bottom surface; and wherein connections formed between said component connection pads and said PCB connection pads have an hourglass shape, and act to absorb at least a portion of the stress due to differences between said first TCE and said second TCE.